CAPCOA PRIORITIES FOR CORRECTING VAPOR ASSIST AND BALANCE VAPOR RECOVERY SYSTEM PROBLEMS

1. REQUIRE GAS-TIGHT SYSTEMS

A. (HIGH PRIORITY) **Evaluate air leaks associated with the Phase I piping connections, flapper-valve equipped drop tubes, and drop tubes which cause unsaturated air to be ingested into the liquid during bulk gasoline deliveries which significantly reduces Phase I efficiency.**

Requested CARB Action:
1. Evaluate the leak intensity as a function of time.
2. Develop a performance test procedure.

District Action:
1. Request concurrence from CARB to disallow the continued installation of flapper valve-equipped drop tubes.
2. Utilize appropriate test methods to determine performance of flapper valve-equipped drop tubes.

B. (HIGH PRIORITY) **Evaluate leaks associated with leaky drain valves and Phase I stress failures. Systems designed to handle ORVR and current systems with manifolded tank vapor spaces above ground require higher levels of gas-tightness.**

Requested CARB Action:
1. Decertify drain valves.
2. Include annual leak decay testing for balance system executive orders.

District Action:
1. Require annual system static pressure testing of balance systems.
2. Request concurrence from CARB to disallow continued installation of drain valves.

2. DEFECTIVE EQUIPMENT

A. **Replace the OPW 11VAI Aluminum Nozzle over the next four years.** Although replacements of aluminum spouts with stainless steel spouts is helpful, the OPW 11VAI nozzle remains a problem because of separation of the plastic vapor path at the top from the nozzle body.

Requested CARB Action:

1. Decertify the OPW 11VAI nozzle unless OPW implements solutions to the problem.

District Action:

1. Request concurrence from CARB to disallow continued installation of the OPW 11VAI nozzle.
2. Perform appropriate tests and "tag out" defective nozzles.

B. **(HIGH PRIORITY) Eliminate hose crimping.** "Curley Q" hose configurations associated with the Wayne "DL" dispensers and Healy systems are crimping hoses resulting in vapor blockages.

Requested CARB Action:

1. Clarify which bootless systems are certified with the "Curley Q" configuration and which ones are not.

District Action:

1. Request concurrence from CARB to disallow new installations of the "Curley Q" hose configurations until design changes are implemented.

C. **(HIGH PRIORITY) Re-evaluate pressure/vacuum relief valves.**

Requested CARB Action:

1. Re-evaluate P/V valves, especially the "clamp-on" designs, for a period of six months.

District Action:

1. Assist CARB with the auditing of equipment wholesalers and forward collected P/V valves to CARB for testing.

3. REVISE EXECUTIVE ORDERS

A. (HIGH PRIORITY) **Include a pressure-drop budget.** Different pressure drops through system components can adversely affect the ability of the bootless systems to maintain an acceptable A/L ratio during refueling events.

Requested CARB Action:

1. Determine the pressure-drop of each approved component and include this in the executive order in the form of a component matrix. This will provide a means for proper selection of components that will not adversely affect the performance of the system.

District Action:

1. Assist CARB in developing an inspection form that documents the components installed and the associated pressure drops

B. **Reference manufacturer's installation guidelines and on-going maintenance manuals in executive orders.** It is suggested that installation guidelines and preventative maintenance manuals be referenced in the applicable executive orders. The required maintenance manuals are not being distributed by certain manufacturers. Yet, Section 41954 (i) (2) of the Health & Safety Code implies they are needed to determine compliance. The primary distributors of the maintenance manuals should be companies that have been given "ownership" of the equipment certifications.

Requested CARB Action:

1 Specify approved installation and maintenance manuals in the executive order after.

2 Place approved installation and maintenance documents on the internet.

C. **Require system installation and service contractors be industry-trained and list these installation and service contractors on the internet.** CARB agreed to place the names of equipment manufacturer and their associated web sites on the CARB internet site that will have a list of

individuals who have received manufacturer their training. That has not been done.

Requested CARB Action:

1. Proceed with agreement to place the names of industry-trained installers and service contractors on the internet.
2. Investigate the feasibility of a certification program for installers and service contractors.

D. **Require that the manufacturer that "owns" each executive order approve the addition of any hanging hardware prior to inclusion into its executive order.** This would enable system manufactures to request removal of "certified" components from their executive order if they can provide data showing an unacceptable failure rate of such components.

Requested CARB Action:

1. Proceed with the necessary revisions to the executive orders to establish liability for all components certified for a system.

E. **Prohibit on non-processor equipped bootless systems the further installation of underground storage tanks that are manifolded only at the aboveground vents.** Most bootless nozzle executive orders allow this configuration. These configurations have the potential to reduce Phase II efficiencies. Existing facilities with this piping configuration should manifold the tanks underground as shown in the executive order or install Phase I and Phase II piping connections at the tanks which can withstand the stress of bulk deliveries without the creation of leaks.

Requested CARB Action:

1. Disapprove this configuration for all non-processor-equipped bootless systems.

District Action:

1. Request concurrence from CARB to disallow the continued installation of non-processor equipped bootless systems associated with underground tanks manifolded only at the aboveground vents.

F. **Revise the executive orders to require that documentation of any repairs and replacements necessary to successfully conduct the start-up and annual A/L and static pressure tests be submitted to the local district with the final test results.** This will allow the districts to collect data, in conjunction with CARB, to improve performance of the components.

Requested CARB Action:

1. Revise the executive orders as outlined above.

District Action:

1. Implement via permit condition.

G. **Require new installations of bootless Phase II systems to (1) manifold storage tank vents to a single P/V valve and, (2) use a single stem dispenser configuration.** Pressure-related fugitive emissions can be minimized by reducing the number of potential leak sources at gasoline dispensing facilities. Reducing the number of P/V valves on storage tank vent pipes from three to one, and the number of nozzles from six per dispenser to two can significantly reduce the emissions of gasoline vapors.

Requested CARB Action:

1. Revise the relevant executive orders to require manifolding of storage tank vents to a single P/V valve and installation of single stem dispenser configurations.

District Action:

1. Request concurrence from CARB to disallow the continued installation of multiple P/V valves and multi-stem dispenser configurations.

H. **Require a start-up and annual test of CARB-required monitors for those bootless Phase II systems where failure of a single "critical" component will cause a large degradation of the efficiency for the entire facility.** Some bootless system (i.e. Hirt, Hasstech, Healy) have a critical component(s) that results in large Phase II efficiency

degradation for the entire facility if the component(s) fails. In recognition of this, CARB has required monitors for these systems. Title 17 and the CH&SC require local districts to "tag" all nozzles affected by a "significant" defect.

Requested CARB Action:

1. Require both start-up and annual verification tests of "critical" components to ensure the CARB-required monitors function properly.

District Action:

1. Implement via permit condition.

I. **Require a retrofit of all dispensers with adequate hardware/software to meet CARB requirements that dispensers not dispense gasoline if the vacuum pump is non-operational.** Vapor Recovery Committee has data showing vacuum pumps are not operational during dispensing.

Requested CARB Action:

1. Evaluate currently certified bootless systems and, if necessary, require retrofitting with adequate hardware/software to ensure that dispensers not dispense gasoline if the vacuum pump is non-operational. Of special concern are Dresser-Wayne dispensers installed prior to 8/26/96.

District Action:

1. Conduct screening and testing with appropriate test procedures.

4. DEVELOP APPROPRIATE SYSTEM PERFORMANCE TESTS

A. <u>(HIGH PRIORITY)</u> **Evaluate the 27" vacuum test, developed by Dresser-Wayne, as quickly as possible. Sufficient data has been presented that proves that gas-tightness between the nozzle and the vacuum pump is essential to removing liquid blockage in hoses.**

Requested CARB Action:

1. Evaluate the 27" vacuum test developed by Dresser-Wayne.
2. Evaluate the benefits of installing a ball valve/quick disconnect or a "T" on the inlet side of the vapor pump in order to isolate the pump-nozzle path for testing purposes.

3. Include this 27" test procedure into the installation and maintenance manuals approved in the executive order.

B. (HIGH PRIORITY) **Evaluate the BAAQMD "bag test".**

Requested CARB Action:
1. Evaluate the BAAQMD "bag test".
2. Clarify the "bag test" as an appropriate mechanism for identifying Title 17 defects.
3. Include as an inspection procedure in the executive order.

District Action:
1. Utilize the "bag test" as an inspection technique for evaluating nozzles vapor leaks

5. REVISE CERTIFICATION EVALUATION AND TESTING METHODS

A. **Failure mode testing should be included in the system evaluation process to determine long-term component reliability that will also assist in problem diagnosis.**

Requested CARB Action:
1. Pursuant to CP-201, Section 5, perform failure mode testing during system evaluation and certification.
2. Require industry to provide expected product life for components based on throughput and type of dispenser configuration.
3. Evaluate extended warranty requirements.

B. **Limit the effective life of certifications to four years.** Historical experience with the certification process has demonstrated the problems with open-ended certifications. This has been discussed in ARB meetings and the Vapor Recovery Committee supports its inclusion.

Requested CARB Action:
1. Limit the effective life of system certifications to four years.

2. Perform an engineering evaluation at the end of the 4-year period and require necessary modifications to the system or components prior to re-certification.

C. **Re-evaluate above ground tank certification procedures.** Districts have raised concerns that vapor recovery systems certified for use on above ground tanks are operating at less than 95% efficiency.

Requested CARB Action:
1. Re-evaluate above ground tank certification procedures.
2. Conduct joint CARB/district system source tests.

D. **Add language to TP-201.5 regarding draining of hoses prior to vacuum tests.**

Requested CARB Action:
1. Revise the language in TP-201.5 (A/L) to include the following: *No liquid shall be drained from the hoses in order to facilitate passage of the A/L tests prior to conducting the tests.*

District Action:
1. Include the hose draining prohibition in local district test policy.

6. MISCELLENEOUS CONCERNS

A. **Develop system specific maintenance schedules and logs and include in the applicable executive orders.**

Requested CARB Action:
1. Develop system specific maintenance schedules and logs and include in the applicable executive orders.

District Action:
1. Require maintenance logs as a permit condition.
2. Assist WSPA in the development of maintenance logs that will provide information on PM programs, component reliability, and individuals performing the maintenance and testing.

B. **Revise Title 17.** Title 17 identifies system defects that substantially impair the effectiveness of the system and are subject to being tagged

"Out of Service" (CH&SC Section 41060.2(c). The existing list of defects is 17 years old and does not address many of the systems and components currently in use. Reestablishing this list will provide consistency throughout the state and help protect the affected businesses by allowing them to factor in the enforcement requirements of the various Phase II systems, into their final decision for system selection.

Requested CARB Action:

1. Revise Title 17 and include one page summary of relevant Title 17 defects in each executive order.
2. Review and amend, as needed, the Title 17 defect list annually.

C. **Develop Industry standards for vapor recovery equipment.** It is suggested that CARB establish standards for vapor recovery equipment durability, materials, piping, etc. that are similar to building specifications developed and used by industry. This may be contracted to an independent firm. (i.e. API, etc.)

Requested CARB Action:

1. Develop Industry standards for vapor recovery equipment.
2. Include test data/technical reports from individual districts.

D. **Enforce the 100% factory testing of nozzles, as specified in the executive orders.** This is necessary to reduce fugitive VOC and toxic emissions caused by pressure in underground storage tanks. In addition to the tests for nozzle shutoffs, the bootless nozzles should also be 100% factory-tested for (a) pressure vs. vacuum and (b) static pressure integrity, specifically at the spout/body interface and vapor check valve verified by factory inspections.

Requested CARB Action:

1. Perform periodic auditing/testing of manufacturers' and distributors' components.

E. **Allow the Vapor Recovery Committee a 30-day review period prior to the issuance of new executive orders.** Acceptance of this proposal would result in the dual benefits of providing the local districts the

necessary lead-time to integrate the new components, or systems, into both their Permit and Enforcement policies. This review period would be a tremendous aide in the Permit streamlining effort and provide adequate time for training of local inspectors. It also would provide CARB with comments on issues of clarity, and intent, prior to the formal issuance of the executive orders.

Requested CARB Action:

1. E-mail the draft executive orders to the districts and allow 30 days for review and comment.

F. **Develop a "Summary of Certification" document to be included with each executive order.** Section 41954 of the H&SC specifies the mechanism to obtain certification. If all of the procedures in the CARB test procedures are followed, the systems will perform properly. CARB should supply a "Summary of Certification Process" document with each executive order. This summary should clearly document that all phases of the process, from application through efficiency testing were successfully completed.

Requested CARB Action:

1. Develop a "Summary of Certification" document to be included with each executive order.

G. **Establish a certification program for individual testing personnel.**

Requested CARB Action:

1. Establish a certification program for individual testing personnel.

H. **Establish standards for above ground storage tank systems.** Rural districts expressed concern that this problem was overlooked in the previous CAPCOA recommendations (January 1996 letter to Jim Morgester). At a CAPCOA Vapor Recovery Committee meeting, CARB agreed to bring uniformity to the above ground tank test and installation standards and to address the problem of leaking emergency pressure relief valves. This has become increasingly important as aboveground tanks replace underground tanks for commercial operations in rural districts.

Requested CARB Action:

1. Revise above ground tank certifications to bring uniformity to testing requirements and equipment installation standards.

I. **Develop and implement a system specific preventative maintenance program.**

Requested CARB Action:

1. Work with industry and districts to identify key operating parameters and functions to be incorporated into the PM program (i.e. testing of nozzle/breakaway mechanisms after a drive-off.